

INFLUENCE OF AIR RESISTANCE ON EJECTION FROM MOLD OF THIN-WALLS INJECTED PARTS

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In this paper is analyzed the air resistance influence on the movement of an injected part when the part is ejected from mold. The studied body (fig. 1) is a tapered thin-wall injected part (a flower pot). After mold opening the part is ejected by the ejector system. In order to increase the productivity it is desirable that the horizontal distance traveled by injected part to be the smallest. In case of tapered thin-wall injected parts made of plastic, due to their shape and low weight the air resistance will influence the trajectory and their position during the throwing.

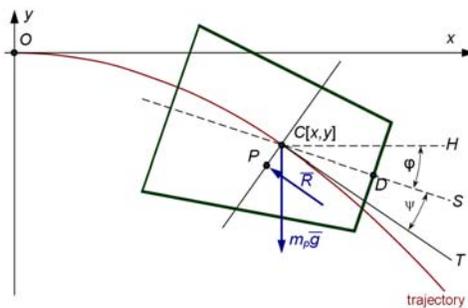


Fig. 1

The air resistance is proportional to area A of projection of the cone frustum on a plan perpendicular to the direction of the speed vector and acts in the centre of pressure P (the centre of mass of this projection). We deal with a specific part and we came to the conclusion that area $A(\Psi)$ and the moment arm $\Delta_{PC}(\Psi)$ of torque given by air resistance have considerable large values (fig. 2). Furthermore the variation of the moment arm $\Delta_{PC}(\Psi)$ has a very irregular variation, which will lead undoubtedly to a disorderly movement of the part. In conclusion, air resistance can not be neglected and it has to be taken into consideration in any study of the trajectory of ejected part.

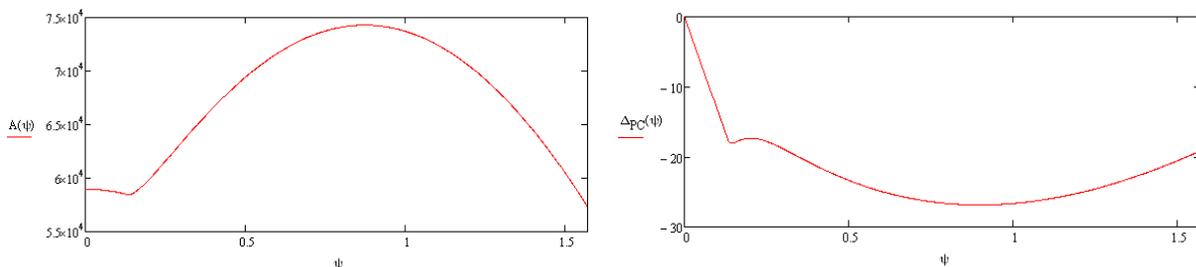


Fig. 2

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